AARON,

WE ARE STILL NOT CLOSE TO WHAT I WANT. I WANT A FORMAL SPEC SIMILAR TO ONE FROM I-I^2 ATTACHED. IT NEEDS THE FOLLOWING INFORMATION:

1. SCOPE OF WORK
2. DESCRIPTION OF HOW WORK SHOULD BE ACCOMPLISHED. (WHO PREPARES TEST PROCEDURE?)
3. LIST OF MATERIAL & SERVICES BY CONTRACTOR
4. LIST OF MATERIAL & SERVICES BY OWNER
5. SCHEDULE FOR TESTING.
6. GUARANTEES ON ACCURACY & UNCERTAINTY.
7. INSURANCE REQUIREMENTS
8. SUBMITTALS & FINAL REPORTS.

ALSO, CALL ALL BIDDERS AHEAD & ASK THEM IF THEY ARE INTERESTED & IF THEY CAN DO THIS WORK.

PLEASE PUT EVERYTHING ELSE ASIDE & COMPLETE THIS ASAP.

Jerry

MEMORANDUM

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: George Cross

FROM: Dennis K. Killian

DATE: February 5, 2002

SUBJECT: HP Turbine Acceptance Testing, PR# 166260

Please approve the attached Purchase Requisition for conducting acceptance testing on the high pressure (HP) turbine following the IGS Unit 2 Major Outage. We are planning to use a third party contractor and utilizing the ASME PTC 6 Test Procedure for Steam Turbines, 1996. The method we will use is the simplified version of the full scope test and utilizing the primary high pressure feedwater flow element. Estimated cost of the performance testing is $60,000.

The objective of the acceptance testing is to determine the HP turbine efficiency (enthalpy drop test) and HP Wheel Power (electrical load equivalent produced by the HP turbine). This information is required to determine HP turbine contract penalties and incentives.

In addition to testing the HP turbine for acceptance, the performance tests will also be used for benchmarking the performance of other key turbine cycle components. These include: the IP turbine (following its outage overhaul), retractable steam packing on HP & IP turbine, boiler feedpump volute acceptance (following outage changeout) and boiler feedpump turbines (detailed perf evaluation).

Third party acceptance testing with high accuracy instrumentation at key locations also allows us to reconcile values with station instrumentation. All instrumentation points will be cross checked and reconciled. Station instrumentation that is out of tolerance will be re-calibrated and/ or changed out. High accuracy instrumentation is also critical to establish several key relationships; HP Turbine Bowl Pressure (1^{st} stage pressure tap replacement) to throttle steam flow for turbine controls setup, final feedwater flow to throttle flow relationship (for controls as well as monitoring steam flow for safety valve limitations (Alston believes throttle flow readings are ~1 to 2% high), plus reference generator electrical output.

If there are any questions, please contact Jerry Hintze at ext

6460 or Aaron Nissen at ext 6482.

AEN:
attachments

INTERMOUNTAIN POWER SERVICE CORPORATION

☐ REQUISITION FOR CAPITAL EQUIPMENT

☒ PURCHASE AUTHORIZATION FOR EXPENSE ITEMS

Date:	01/14/02
Req./PA No:	166260
P.O. No:	
Vendor:	
Terms:	
FOB:	
Ship Via:	
Conf. To:	

Purpose of Materials, Supplies or Services:

Conduct a series of Turbine Cycle Performance Testing utilizing ASME PTC 6.1 Alternative Test Procedure for Steam Turbines.

Suggested Vendor: reference list of testers

Account No. 00-6528-502
Work Order No.
Project No.

Qty	Unit	Description Noun / Adjective / Catalog # / Seller or Manufacturer	Unit Cost	Extension
1	1	Turbine Cycle Performance Testing	$60,000.00	$60,000.00
		Conduct a series of tests to determine turbine		
		cycle performance.		
		Testing shall be done in accordance with		
		ASME PTC 6.1 Alternative Procedure for Steam		
		Turbines		
		reference test scope and test procedures		
		for details		
		TOTAL ESTIMATED COST		$60,000.00

Remarks: RUSH

Delivery requested by [Date] 04/10/01 Originator Aaron Nissen

Dept. Mgr/Supt. Date Station Manager Date Operating Agent Date

IP7010805

TURBINE CYCLE PERFORMANCE TESTING

SCOPE OF WORK:
The Intermountain Power Service Corporation (IPSC) is upgrading plant performance and capacity by replacing the high pressure (HP) turbine section. We will be conducting performance testing on the HP turbine following the Intermountain Generating Station (IGS) Unit 2 Major Outage.

The objective of the HP turbine acceptance testing is to determine the HP turbine efficiency (enthalpy drop test) and HP Wheel Power (electrical load equivalent produced by the HP turbine). This information is required to determine HP turbine contract penalties and incentives.

In addition to testing the HP turbine for acceptance, the performance tests will also be used for benchmarking the performance of other key turbine cycle components. These include: the IP turbine (following its outage overhaul), retractable steam packing on HP & IP turbine, boiler feedpump volute acceptance (following outage changeout) and boiler feedpump turbines (detailed perf evaluation).

All station instrumentation points will be cross checked and reconciled with third party instrumentation. High accuracy instrumentation is critical to establish several key relationships;
1) HP Turbine Bowl Pressure (1st stage pressure tap replacement) to throttle steam flow for turbine controls setup,
2) final feedwater flow to throttle flow relationship (for controls as well as monitoring steam flow for safety valve limitations)
3) generator electrical output.

TEST PROCEDURES:
ASME PTC 6 Steam Turbines Test Procedure. Use the simplified procedure of the full scope test and utilizing the high pressure primary feedwater flow element.

SCHEDULE SUMMARY: IGS Unit 2

Performance Testing	April 1- 6, 2002
Test Setup- during Unit 2 shutdown	March 4- 29, 2002
HP Turbine Enthalpy Drop- 30 day followup testing (only if station instrumentation indicates a significant drop in perf)	May 7- 9, 2002

TEST SERIES (6):

Full Load Tests	(2)	@ VWO/ 2400 psig/ Load 975 MWg
96% Load Tests	(1)	@ VWO/ 2300 psig/ Load 930 MWg
92% Load Tests	(1)	@ VWO/ 2200 psig/ Load 890 MWg
87% Load Tests	(1)	@ VWO/ 2100 psig/ Load 850 MWg
95% Load Test	(1)	throttle controlled/ ~2300 psig/ Load 925 MWg

TURBINE CYCLE PERFORMANCE TESTING- TURBINE DESIGN INFORMATION

Intermountain Power Service Corporation
850 West Brushwellman Road
Delta, Utah 84624

Aaron Nissen
(435) 864-6482
aaron-n@ipsc.com

INTERMOUNTAIN GENERATING STATION
Two sister 875 MW gross units
IGS Unit 1 went commercial 6/86, IGS Unit 2 went commercial 5/87

TURBINE ORIGINAL DESIGN INFO
General Electric S-2, tandem-compound, single reheat with six-flow low pressure stages. Turbine consists of
HP Turbine- newly replaced (03/2002) Alstom single flow, full arc admission
IP Turbine- double flow reheat
LP Turbines- 3 double flow low pressure sections

Stop Valves (4)
Control Valves (4) new (03/2002) full arc admission, via valve chest
combine reheat stop and intercept valves (2)

Condensers
3 Variable Pressure Condenser Hoods

Feedwater Heaters
Dual string of 3 high pressure feedwater heaters (8A/8B, 7A/7B, & 6A/6B)
LP FW Heater String (deaerator, 4, 3, 2, 1A/1B/1C, DC)

Pumps/ BFPT
2 Boiler Feed Pump
2 Boiler Feed Pump Turbines
3 Booster Boiler Feed Pumps
3 Condensate Pumps

TURBINE CYCLE PERFORMANCE TESTING- BIDDERS LIST

Power Generation Technologies
Environmental Systems Corporation
200 Tech Center Drive
Knoxville, Tennessee 37912

Attn:Jack R. Missimer- Vice President, ESC
(865) 688-7900 x 1372, (865) 687-8977 FAX
cell: (865) 705-1613
Email: jmissimer@envirosys.com

Encotech, Inc.
Attn: ~~Dale Kurg~~ FRED KINDL
207 State Street
P.O. Box 714
Schenectady, NY 12301-0714

Fax: (518) 374-0924
Toll Free: (888) Encotech
Telephone: (518) 374-0924
email: fredkindl@aol.com

Allstom
Attn: Bill Eisma

Richmond, VA
(804)763-7715
FAX (804)763-3818
email: bill.eisma@power.alstom.com

Stone & Webster Consultants/ PTI
Kurt Price- Senior Consultant
1482 Erie Boulevard
Schenectady, NY 12301
Phone 518/395-5052 Cell 518/573-7271
FAX 518/346-2777
email: kurt.price@stoneweb.com

Edison O&M Services

1321 S. State College Blvd.
Fullerton, CA 92831

800-398-4182

SUMMARY HIGH ACCURACY INSTRUMENTATION POINTS

Differential Pressure (Flow)

1	Final Feedwater (in-line flow nozzle)
2	BFPT Extraction Steam Flow (2) (in-line flow nozzles)
1	Main Steam Desuperheating Spray Flow
2	Reheat Desuperheating Spray Flow
6	

Pressure

4	Throttle
1	Steam Chest Press
2	Throttle (downstream CV)
2	Cold Reheat
2	Hot Reheat
2	Crossover/ DA Extr
4	Top FW Heaters (2 Htrs- dual strings)
2	BFPT Exhaust
6	LP Turb Exhaust
1	Final Feedwater
26	

Temperature

4	Throttle
2	Cold Reheat
2	Hot Reheat
2	Crossover/ DA Extr
2	BFPTs
16	Top FW Heaters (2 Htrs- dual strings)
1	Condensate Leaving Condenser
1	Final Feedwater
1	Reheat Spray
31	

Electrical Power Measurement	Rating
3 Potential Transducers	13800/ 120, 3000 VA, 60 Hz
3 Precision Watthour Meters	2.5 amp, 120 volt, 60 Hz